AMENDMENTS TO THE SPECIFICATION:

IN THE SPECIFICATION:

Please replace the paragraph beginning at page 3, line 23 with the following:

In a case of thinly forming a dielectric material layer such as of oxide, nitride, sulfide, or carbide, or a mixed film of the dielectric material and a chalcogenide material between the chalcogenide material for memory and one of the electrodes or a resistive heater material layer, since a filament-like region of the chalcogenide is formed in the dielectric material of the region as a fine conductive path upon first setting to low resistance state, and current flows only therein to cause phase-change, a high resistance value and a low operation current value can be obtained. A preferred dielectric material is a material including, as a main ingredient (containing 60% or more), one of germanium oxide, germanium nitride, silicon oxide, silicon nitride, aluminum nitride, titanium nitride, aluminum oxide, titanium oxide, chromium oxide, tantalum oxide, molybdenum oxide, silicon carbide, and zinc sulfide, or a material as a mixture thereof. The mixed film region 308 is preferably in contact with one of the electrodes (for example, 304). It is most preferred that the mixed film region is disposed in

contact with a negative electrode with respect to stability of the memory operation since the filament is formed by positive ions. The operation, however, is possible in a state where the mixed film region is not in contact with both electrodes. In the case of using a mixed layer of the dielectric material and the chalcogenide, the effect of increasing the resistance was not observed unless the content of the chalcogenide was 60 mol % or less. In this embodiment, a film with a thickness of 5 nm consisting of a mixture of 70% of Ta_2O_5 and 30% of a memory layer material was disposed.